Moving to reliable care
The new challenge for paediatrics

Peter Lachman
Programme

- Theories of reliability using medication safety as the model for teaching
- Workshop on responding to deterioration
- Application to improving communication
Foundations for safety

- A safety policy
- Organisational arrangements to support safety
- A means of measuring safety performance
- A feedback loop to improve safety performance
- A safety plan

Framework for safety

- Past harm
- Reliability
- Sensitivity to operations
- Anticipation and preparedness
- Integration and learning

Quality Care

Efficient

Safe

Patient & Family Centered

Timely

Effective

Equitable
Complexity

HEALTH SYSTEM

Context

Leadership & Governance

Service Delivery

Resources
- Infrastructure & Supplies
- Knowledge & Information
- Human Resources
- Finances
- etc

Population

Outcomes

Goals

www.strengtheninghealthsystem.s.be/
Complexity simplified

1. Reconciliation
2. Individualises drug therapy
3. Orders written legibly and correctly
4. Nurse sends to pharmacy or on EP
5. Pharmacy receives and checks
6. Review for appropriateness
7. Dispenses
8. Verifies order and checks
9. Crosschecks
10. Drug to back to nursing
11. Nurse checks
12. Nurse administers
13. Reconciliation
Tool 1: Understand the processes of harm

- **Management decisions & organisational processes**
  - Organisation & Culture
  - Contributory factors
    - Environment factors
    - Team factors
    - Staff factors
    - Task factors
    - Patient factors
  - Care delivery problems
    - Unsafe Acts
    - Errors
    - Violations
  - Defences & Barriers

- **Latent failures**
- **Active failures**

Reference: Reason and Vincent

**Diagram highlights**
- Work place culture
- Human factors
- Active failures
- Harm
What is reliability?

The child or young person should receive, without delay, the care that is needed and wanted the first time every time no matter where he/she lives.
and for medications

The child receives the correct medication at the right dose at the right time every time
Drug that is needed no overuse and underuse on time and stopped on time

Drug that is tolerated

Drug that is works no overuse and underuse
Strategies to Address Adverse Events

- Regulations
- Inspections
- Practical approach - Target top offenders
- Naming

Will not get you to high level of reliability
No sustainable change
“Every system is perfectly designed to achieve exactly the results it gets.”

- Paul Batalden after Deming
Changing our role as professionals

- Limitations on working harder
- Eliminate professional autonomy
- Become equivalent actors
- System-level arbitration
- Simplify rules and regulations

Tool 2 Understanding Violations

The posted speed limit is 50 km/hr. Driving 60 km/hr is ‘normal’ space. Driving 80 km/hr is ‘illegal-illegal’ space. The accident occurs when drivers perceive vulnerability due to life pressures and belief systems.
Understanding Violations

- **INDIVIDUAL BENEFITS**
  - **VERY UNSAFE SPACE**
    - Only when outside regulators visit
      - ‘Illegal illegal’ space
    - We comply with the regulations most of the time
      - ‘Illegal-normal’ space
    - Safety is what we do in this organisation
      - ‘legal’ space

- **External Pressures**
- **Perceived vulnerability**
- **Belief Systems**

Reference Almaberti
System Migration to Unsafe Practices

write mg and $\mu g$ in full depending who is on = ‘Illegal- Illegal’ `space

write mg and $\mu g$ in full some of the time

Illegal normal

write mg and $\mu g$ in full every time

Legal Normal

INDIVIDUAL BENEFITS
Attributes of High Reliability Organizations

Preoccupation with failure
Reluctance to simplify interpretations
Sensitivity to operations
Commitment to resilience
Deference to expertise

Weick, Managing the Unexpected: Assuring High Performance in an Age of Complexity, Jossey Bass 2001
“Together these five processes produce a collective state of mindfulness. To be mindful is to have an enhanced ability to discover and correct errors that could escalate into a crisis.”
Level 1 reliability

Intent, Vigilance and Hard Work
Can achieve up to 80-90% Reliability

Common equipment, standard order sheets, multiple choice protocols, and written policies/procedures

Personal check lists

Feedback of information on compliance

Suggestions of working harder next time

Awareness and training

from R Resar, IHI
Level 2 reliability

Human Factors and Reliability Science
Can achieve up to 95% reliability

- Decision aids and reminders built into the system
- Desired action the default (based on evidence)
- Built in redundant processes
- Use fixed current scheduling in design
- Take advantage of habits and patterns

Elimination of variability in care delivery
- Standardisation of process based on clear specification and articulation
- Use of care bundles

from R Resar, IHI
A bundle is a collection of processes needed to effectively and safely care for patients undergoing particular treatments with inherent risks.

It is a grouping of several **scientifically grounded elements** essential to improving clinical outcomes.

Several interventions are bundled together and, when combined, significantly improve patient care outcome.

A patient gets a “**Yes**” if we actually did everything we planned to do, and a “**No**” if anything, even just one process, was left out.
Level 3+ reliability

Moving towards High Reliability

Anticipation

- Preoccupation with failure
- Reluctance to simplify interpretations
- Sensitivity to operations

Containment

- Commitment to resilience
- Deference to expertise
Interventions that help

- E-prescribing and CPOE, particularly when coupled with CCDS
- Medication reconciliation on a regular basis, especially at transitions in care
- Clinical pharmacists on inpatient units
- Education of staff and trainees
- Bar-code systems
- Standardization and checklists
- System changes to encourage teamwork and open communication in a non punitive environment
Medication: Prescribing Errors
ICU GOSH

CICU Total prescribing errors per Bed Day

Week Start Date

Measure  UCL  LCL  Mean  Median
Medicus (Please don’t) Interrupt-Us
Diane Grade, BSN,RN; Sherry Nolan, MSN,RN
Children’s Hospital Los Angeles

Why did we do this?
- In the U.S. alone, >25 million people are harmed annually by preventable medical errors, roughly equivalent to one full jumbo jet falling from the sky every day.
- The likelihood of making a medication error increases by 69% if the nurse is distracted, and doubles with 4 or more interruptions during a single medication pass.
- Well-designed checklists improve outcomes even with expert users.
- Humans are not built to multi-task, although we persist in trying.
- Patients are not the only victims of medical errors.

September 2010, Kimberly Hiatt, an experienced PICU nurse, made an error in drawing up a medication she had often given before. On the day of Hiatt’s error she submitted a report on the hospital’s electronic feedback system. “I massaged” up, she wrote “I’ve been giving CaCl (Calcium Chloride) for years. I was talking to someone while drawing it up”. Seven months after accidentally overdosing a fragile baby, Hiatt, overcome with despair, tragically took her own life.

In-House Research Showed:
- Most medication errors occur during administration.
- An average of 3 interruptions per medication pass was revealed by observational data collection.
- At Children’s Hospital Los Angeles our multidisciplinary Shared Governance Quality Council was tasked with developing a quality improvement project aimed at decreasing medication errors.

The project was initially piloted on two inpatient units during Spring of 2010. After a 3 month trial period there was a dramatic decrease in medication administration errors, and the project was extended to the other medical/surgical units.

Interventions
- Committee members recommended adapting Kaiser Permanente’s “Med-Rite” program as a quality improvement project to decrease interruptions and highlight the complex nature of medication administration.

Three Pronged Plan of Action – The 3 S’s

* Standardized Steps - A checklist to re-educate and reinforce the medication administration policy including “7 rights”

* Sash - (Non-Interruption Wear) The bright yellow sash is worn during the entire medication administration process signifying that the nurse is administering medications and should not be interrupted.

* Silence - Medication rooms are designated as silent areas where nurses double check and prepare medications.

+ PCS Grand Rounds: “Reducing the Risk: Real Reasons for ‘3 Rights’”

- October 2011, Implementation of house-wide medication administration audits

- Implementation of electronic incident reporting system

Outcomes
- Almost 2 years into the project, we have increased compliance with standardized steps, while interruptions are variable. For the past six months we have been gathering observational data of 30 monthly audits. New challenges continue, however, requiring constant attention, revision and updating.

Challenges:
- Increase in interruptions and number of administration related medication errors associated with.
- Moving & adapting to new hospital work environment
- Increased distances
- Polycom phones
- Limited public space available for educational posters

Lessons Learned (Importance of):
- Positive reinforcement –Plaza lunches for unit with best quarterly compliance
- Consistency and compliance -Deviation in practice produces mistakes
- Increased transparency – “Spotlight on Patient Safety” – (Sharing real incidents for staff learning)
- Administrative support -With increased administrative support (i.e., mandated house-wide audits), both awareness and compliance are rising

Moving Forward:
- Expansion to the outpatient units and ICUs
- “Keeping it fresh” – Development of comic relief video
- Revisit of Policy & Procedure

Do it for Me!
Thanks to Kaiser Permanente’s “Med-Rite” program for its innovative, willingly shared and inspirational initiative.
Medication Coordination Flowsheet
(Adapted from the work of Roger Resar, M.D.)

Pt. Admitted

Nurse completes Med Coordination Data Sheet

Physician orders with drugs, dosages, and times are assembled

Can patient or family give accurate, confirming data?

Stop. Use this information

Is time of last dose in question

Is this a 24 hour Med?

Can clinic chart or other sources be obtained in 24 hours

Does clinic chart or other external source reconcile?

Does this confirm drug and dose?

Can Pharmacy reconcile drug and dose?

Is time of last dose in question

Yes

Call M.D.

Reconciled

Yes

No

Reconciled

Yes

No

Call M.D.

No

No

Reconciled

No

Yes

Reconciled

Call M.D.
Recognising and responding to clinical deterioration

1. Measure and document observations
2. Recognise deterioration
3. Communicate appropriately
4. Respond effectively
Communication

**Situation:**
I am (band X nurse) on (ward X)
I am calling about (patient X) who is (age X)
The reason I am calling is because I am concerned as the...
- (e.g. Resp. is XXX, Pulse is XXX, Temp is XXX, CEWS is XXX)

**Background:**
Patient X was admitted on (date) with (e.g. seizure/ chest infection)
They have had X operation/ procedure/ investigation...
Patient X’s normal condition is (e.g. alert/ drowsy/ confused pain free)

**Assessment:**
I think the problem is...
Or I am not sure what the problem is but patient X is deteriorating
Or I don’t know what’s wrong but I am really worried
And I have…- (e.g. given \(O_2\)/ given analgesia/ stopped the infusion)

**Recommendation:**
I need you to...
- (e.g. come and see the patient in the next XXX minutes/hours;
prescribe additional fluids when you are next visiting the ward)

**Decision**
The receiver reads back the SBARD
The plan we have agreed on is...
- (e.g. you will attend within the next xxx minutes/hours; stop the fluid/ repeat the obs.)

Acknowledgement to the Institute of Healthcare Improvement (www.ihi.org/ihi) and to NHS Institute for Innovation and Improvement (www.institute.nhs.uk/safercare)
Getting to the third curve

Performance

Co-production Asset

Improvement

Performance
<table>
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<th>What we permit we promote</th>
<th>Zero tolerance for deviance</th>
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<td>Understand the human factors</td>
<td>Change the parameters</td>
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Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.
http://www.pipsqc.org/MedicationSafetyResources.aspx
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